

RHYNCHOTA.
HEMIPTERA-HOMOPTERA.

VOL. II.

PART 2.

BY
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BIOLOGIA CENTRALI-AMERICANA.

ZOOLOGIA.

Class INSECTA.

Order RHYNCHOTA.

Suborder HEMIPTERA-HOMOPTERA (continued).

Fam. ALEURODIDÆ*.

The following species have been recorded from our region :—

ALEURODICUS, Dougl.

1. *Aleurodicus dugesi*.

Aleurodicus dugesii, Ckll. Canad. Entom. 1896, p. 302.

Hab. MEXICO: Guanajuato (*Dugès*).

2. *Aleurodicus iridescens*.

Aleurodicus iridescens, Ckll. Psyche, 1898, p. 225.

Hab. MEXICO: Tabasco (*Townsend*).

3. *Aleurodicus mirabilis*.

Aleurodes mirabilis, Ckll. Psyche, 1898, p. ~~225~~.

Aleurodicus mirabilis, Ckll. Psyche, 1899, p. 360.

Hab. MEXICO: Tabasco (*Townsend*); Minatitlan, on *Anona*, 1898 (*Townsend*).

ALEURODES, Amy. & Serv.

1. *Aleurodes vinsonioides*.

Aleurodes vinsonioides, Ckll. Psyche, 1898, p. 225.

Hab. MEXICO: Tabasco (*Townsend*).

2. *Aleurodes nicotianæ*.

Aleurodes nicotianæ, Maskell, Trans. New Zeal. Inst. 1895, p. 436.

Hab. MEXICO: Guanajuato (*Dugès*).

3. *Aleurodes erigerontis*.

Aleurodes erigerontis, Maskell, Trans. New Zeal. Inst. 1895, p. 429.

Hab. MEXICO: Escalon (*Cockerell*). See Ent. News, 1896, p. 247.

* By T. D. A. COCKERELL.

BIOL. CENTR.-AMER., Rhynch. Homop., Vol. II. Pt. 2, December 1899.

Fam. COCCIDÆ*.**MONOPHLEBINÆ.****MONOPHLEBUS, Leach.**[*Llaveia*, Signoret.]

The supposed distinctions between *Monophlebus* (= *Llaveia*, Sign.) and *Protortonia* are due to the immaturity of the type-specimens of the latter group. Adults of *Protortonia primitiva* have 11-segmented antennæ. See Proc. Acad. Nat. Sci. Phil. 1899, p. 259.

1. Monophlebus axinus.

Llaveia axinus (Llave), Sign. Essai sur les Cochenilles, p. 404 (1875); Ckll. Can. Ent. 1897, p. 271. *Coccus adiposera*, Dondé Ruiz (Ibarra), La Emulacion (Merida, Yucatan), ii. pp. 174-180 (1879). *Abstr.* Scientific American, xlii. p. 10 (1880); Sci. Amer., Suppl. no. 184 (July 1879); Gaea, vi. pp. 563-566 (1870); Colonies and India, 26 April, 1879, p. 9; Lotos, 1875 (?), pp. 199-200; Journ. Applied Science, x. pp. 24-25 (1879) (cf. Taschenberg, Bibl. Zool. ii. 1889, p. 1526).

Hab. MEXICO: Tlacotalpam (*de la Llave*); between Salina Cruz and Tehuantepec in Oaxaca (*Townsend*); Yucatan, on *Spondias* (*Dondé Ruiz*).

This insect is coral-red (♀) and is covered with a fine whitish powder. From the females is extracted 26 to 28 % of their weight of a bright yellow fat, which is said to be the most quickly drying oleaginous substance known.

Dr. A. Dugès has described a var. *dorsalis*, Nat. Mex. (2) i. p. 160 (1888).

2. Monophlebus bouvari.

Ortonia bouvari, Sign. Essai sur les Cochenilles, p. 402 (1875).

Hab. GUATEMALA.

3. Monophlebus primitivus.

Ortonia primitiva, Towns. Journ. N. Y. Ent. Soc. 1898, p. 169.

Hab. MEXICO: Cuautla in Morelos (*Koebele*).

4. Monophlebus mexicanorum.

Ortonia mexicanorum, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 430.

Hab. MEXICO: Mixcoac (*Koebele*).

* By T. D. A. COCKERELL. Nearly all of the material of this family has passed through my hands. A detailed list of Mexican Coccidæ, with food-plants and localities, was published by Prof. C. H. T. Townsend in Journ. N. Y. Ent. Soc., Dec. 1897. Since then, forty new species have been described from Mexico in Journ. N. Y. Ent. Soc., Sept. 1898, Ann. & Mag. of Nat. History, June 1898, and 'Entomologist,' June 1898. I am responsible for the identification of the Panama species collected by Mr. Dolby-Tyler. In working over the collection procured in 1898 by Prof. Townsend I have been assisted by Mr. P. J. Parrott, of the Kansas Agricultural College.—T. D. A. C.

The following males may belong to one or the other of the four species enumerated, and it is therefore inadvisable to name them:—

Monophlebus, sp.

♂. Expanse of wings about 16 millim. Head, body, legs, and antennæ ferruginous; eyes bright scarlet; abdomen thinly covered with cottony secretion, and presenting eight long fleshy caudal processes covered with short hairs. Wings black, with the usual broad red costa and two white streaks.

Hab. PANAMA: Volcan de Chiriqui 3000 feet (*Champion*).

In size and coloration resembles the African *M. raddoni*, Westw., but that has the thoracic dorsum piceous. This and the two following males are particularly interesting, because they show that the *Monophlebus*-like insects of Central America, variously referred to *Ortonia* and *Llaveia*, have indeed in the male, as well as in the female, the structure of true *Monophlebus*. As four species are known from our region from the female only, it is probable that some or all of these males belong with them; hence no names are proposed for the males, although several species have been described in former years from the male alone.

Monophlebus, sp.

♂. Expanse about 10 millim. Reddish; eyes, thoracic band, ventral surface of thorax, and legs black; antennæ very dark brown; abdomen bright scarlet, practically naked, with only four long fleshy processes, which are brown. Wings black, with a red costa, but no white streaks.

Hab. PANAMA: Volcan de Chiriqui 3000 feet (*Champion*).

This departs from typical *Monophlebus* in having only four (instead of eight) caudal processes. It may possibly be the male of *Protortonia*, in which case that name might well be used in a subgeneric sense.

Monophlebus, sp.

♂. Expanse about 10 millim. Dull red; head, except the occiput, antennæ, legs, and pro- and mesothorax black; abdomen with eight fleshy processes, the first shorter than the rest; wings black, with the usual red costa, and two white lines, which are longer and finer than in the large species from Chiriqui.

Hab. MEXICO: Acaguizotla in Guerrero 3500 feet (*H. H. Smith*).

ICERYA, Sign.

1. **Icerya montserratensis.**

Icerya montserratensis, Riley & Howard, Insect Life, iii. p. 99 (1890).

Hab. MEXICO: Izamal in Yucatan (*Townsend*), Tampico (*Townsend*); PANAMA, Colon (*S. A. Davis*).

2. **Icerya palmeri.**

Icerya palmeri, Riley & Howard, Insect Life, iii. p. 103 (1890) (young); Townsend, Journ. N. Y. Ent. Soc. 1898, p. 167 (adult).

Hab. MEXICO: Guaymas (*Palmer, Koebele*).

3. *Icerya purchasi*.

Icerya purchasi, Maskell, Trans. New Zeal. Inst. xi. p. 221 (1878).

Hab. MEXICO: Guaymas (*Townsend*); Hermosillo (*Townsend*); Magdalena (*Townsend*); Monterey (*Townsend*).

This insect exists in two forms, which are probably distinct species. The form *maskelli*, Ckll., is found near Guaymas, and the form *crawii* at Magdalena. See *Townsend*, Journ. N. Y. Ent. Soc., Sept. 1898, pp. 165-167.

Subg. PROTICERYA, Ckll.

4. *Icerya littoralis*.

Icerya littoralis, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 429.

Hab. MEXICO: El Faro near Frontera (*Townsend*); Tehuantepec city (*Townsend*).

A var. *mimosæ*, Ckll., from Las Minas near Frontera (*Townsend*), has been described by me (*loc. cit.*).

5. *Icerya rileyi*.

Icerya rileyi, Ckll. Psyche, Dec. 1895, Suppl. p. 15.

Hab. MEXICO: Juarez in Chihuahua (*Cockerell*).

Originally described from New Mexico.

CRYPTICERYA, Ckll.

1. *Crypticerya rosæ*.

Icerya rosæ, Riley & Howard, Insect Life, ii. p. 333, iii. p. 93.

Hab. MEXICO: Tehuantepec city (*Townsend*).

mexicana, Ckll. & Parrott, subsp. n.

♀. About 7 millim. long., 5 broad, $4\frac{1}{2}$ high. Dark red, stained with black in the dorsal region, more or less covered with white powder; three longitudinal series (one dorsal, the others lateral) of rather large patches of bright sulphur-yellow secretion, extending over the anterior half of the insect. Legs black.

Newly-hatched larva similar to that of *C. rosæ*, but the lateral hairs before the six long caudal ones are not usually so long, and there are two very long hairs on each side of the body in the cephalothoracic region.

The following measurements (in μ) will assist identification:—

Larva. Legs: coxa 70-74; femur with trochanter 231; tibia 239-281; tarsus 165; claw 38-41.

Larva. Antennæ: segments (1) 39-49, (2) 57-66, (3) 66-74, (4) 53-57, (5) 49, (6) 149-165.

Larva. Median caudal hairs 994-1143 μ ; second caudal hairs 828-994 μ ; anterior long cephalothoracic hairs 496-579 μ ; posterior long cephalothoracic hairs 463-496 μ .

Adult female. Antennal segments (1) 132, (2) 99, (3) 107-115, (4) 82-99, (5) 78-82, (6) 54-66, (7) 54-66, (8) 82, (9) 82, (10)?, (11) 198. Legs: coxa 248-265, femur with trochanter 695-748, tibia 636-666, tarsus 331, claw 82. There are dermal hairs of two sizes—the larger 298 μ , the shorter 66 μ .

Hab. MEXICO: Aguas Calientes, May 1, 1898, on *Prosopis*, sp. (*Townsend*).

This subspecies has the yellow spots of *C. australis*, Mask., but differs from that insect and from *C. rosæ* in the lateral hairs of the larva.

ORTHEZIINÆ.

ORTHEZIA, Bosc.

1. *Orthezia sonorensis*.

Orthezia sonorensis, Ckll. Bull. 4, Techn. Ser., Div. Ent., U. S. Dept. Agric. (1896) p. 38.

Hab. MEXICO: San Ignacio in Sonora (*Townsend*).

2. *Orthezia insignis*.

Orthezia insignis, Douglas, Ent. Monthly Mag., Jan. 1888, p. 170 (♀) (excl. ♂).

Hab. MEXICO: Vera Cruz (*Cockerell*); Guanajuato (*Dugès*); Guadalajara (*Townsend*); Aguas Calientes (*Townsend*); Izamal (*Townsend*); at Vera Cruz, on potted plants of *Gardenia* brought from Orizaba, April 23, 1898 (*Townsend*).

COCCINÆ.

PSEUDOCOCCUS, Westwood.

Coccus, L., was first subdivided by Geoffroy, who uses *Chermes* (not *Chermes*, Linn., which is the proper name for *Psylla*) for *Lecanium*, &c., and restricts *Coccus* to those species which in the females "retain the shape of an insect." Geoffroy has three species under *Coccus*, and only one of these, *C. phalaridis*, is mentioned in the tenth edition of the 'Systema Naturæ.' This must apparently be regarded as the type of *Coccus*; it seems to be a *Ripersia*. See Proc. Acad. Nat. Sci. Phil. 1899, p. 260.

1. *Pseudococcus cacti*.

Coccus cacti, Burm. Handb. der Ent. ii. p. 72 (1839) (nec Linn.).

Hab. MEXICO; GUATEMALA; HONDURAS; SALVADOR; NICARAGUA.

For a discussion of its detailed distribution, see Edward Wiepen, JB. d. Höhere Bürgerschule de Stadt Köln, 1889. Burmeister's type was from Mexico.

The insect described as *Coccus cacti* by Linnæus, Syst. Nat. ed. x. p. 457, which he received from Daniel Rolander, is a Monophlebid, as can readily be seen by consulting DeGeer's figures of specimens from the same source. The Linnean description is full enough to show that his insect was not the cochineal. Burmeister's description, and also his references, pertain to the true cochineal.

2. *Pseudococcus tomentosus*.

Coccus tomentosus, Lam. (*opuntiae*, Licht. MS., Ckll.); Ckll. Bull. 4, Techn. Ser., Div. Ent., U. S. Dept. Agric. (1896) p. 35.

Hab. MEXICO: Guanajuato and Silao (*Dugès*). Var. *newsteadi*, Ckll.: La Puerta Rancho in Tamaulipas (*Townsend*).

3. **Pseudococcus confusus.**

Coccus confusus, Ckll. Amer. Nat. 1893, p. 1043.

Hab. MEXICO: Cuautla, July 25, 1897 (*Koebele*, in coll. U. S. Dep. Agric., det. Pergande).

Described from New Mexico.

ERIOCOCCUS, Targ.-Tozz.

1. **Eriococcus dubius.**

Eriococcus dubius, Ckll. Bull. 4, Techn. Ser., Div. Ent., Dept. Agric. (1896) p. 37.

Hab. MEXICO: Valles (*Townsend*).

2. **Eriococcus quercus.**

Rhizococcus quercus, Comst. Rep. U. S. Dept. Agric. for 1880 (1881), p. 340.

Hab. NORTH AMERICA, Florida.—MEXICO, Guanajuato (*Dugès*).

Originally described from Florida.

CEROCOCCUS, Comst.

1. **Cerococcus corticis.**

Cerococcus corticis, Towns. & Ckll. Journ. N. Y. Ent. Soc. 1893, p. 170.

Hab. MEXICO, Nogales in Sonora (*Koebele*).

SOLENOCOCCUS, Ckll.

Solenococcus, Ckll. Bull. Ills. State Lab. Nat. Hist. 1899, p. 392.

(*Solenophora*, Maskell, nec *Solenophora*, Benth. 1840, nec *Solenophorus*, Crepl. 1839, nec *Solenophorus*, Muls. 1840.)

1. **Solenococcus koebelei.**

Solenophora koebelei, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 429.

Hab. MEXICO, Tulare (*Koebele*).

Mr. E. E. Green (*in litt.*) suggests that *Solenococcus* might be merged in *Cerococcus*, but I think they are sufficiently distinct.

POROCOCCUS, Ckll.

1. **Porococcus tinctorius.**

Porococcus tinctorius, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 427.

Hab. MEXICO, Amecameca (*Koebele*).

2. *Porococcus pergandei*.

Porococcus pergandei, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 427.

Hab. MEXICO: Cuautla (*Koebele*).

CAPULINIA, Sign.

1. *Capulinia sallei*.

Capulinia sallei, Sign. Essai sur les Cochenilles, p. 326 (1875).

Hab. MEXICO (*Sallé*); Arroyo San Isidro, near Frontera (*Townsend*). See *Townsend*, Journ. N. Y. Ent. Soc., Sept. 1898, pp. 173–174.

PHENACOCOCCUS, Ckll.

1. *Phenacoccus yuccæ*.

Pseudococcus yuccæ, Coq. West Amer. Scientist, Sept. 1890, p. 44.

Hab. MEXICO: many localities. See *Townsend*, Journ. N. Y. Ent. Soc. 1897, p. 180.

The var. *mexicanus* (Ckll.), described from the city of Mexico, is distinguished by the dorsal markings of the body. On April 30, 1898, *Townsend* found this species (det. *Tinsley*) on bark of *Phytolacca* in Mexico city.

2. *Phenacoccus helianthi*, subsp. *gossypii*.

Phenacoccus gossypii, Towns. & Ckll. Journ. N. Y. Ent. Soc. 1898, p. 170.

Hab. MEXICO: Frontera (*Townsend*); Las Islas del Rio Usumacinta in Tabasco (*Townsend*); Tlacotalpam, April 19, 1898, on leaves and twigs of *Malvaviscus* in the plaza (*Townsend*).

The last-mentioned specimens were determined by Prof. *Tinsley*.

DACTYLOPIUS, Costa.

1. *Dactylopius citri*.

Dorthesia citri, Risso, Essai sur l'histoire naturelle des Orangers (1813).

Hab. MEXICO: Orizaba, Cordova, Uruapan, Ario, Cuicatlan, Jacona, and Tacambaro (*Segura*); Orizaba, on *Erythrina*, det. *Tinsley* (*Koebele*); Mexico city, on *Dracæna*, det. *Tinsley* (*Koebele*). GUATEMALA: injuring coffee (*Dieseldorff*). See *Howard* and *Marlatt*, Bull. 18, N. S., Div. Ent., Dept. Agriculture, 1898, pp. 99–100.

2. *Dactylopius virgatus*.

Dactylopius virgatus, Ckll. Entomologist, 1893, p. 178.

Hab. MEXICO: Cuautla (*Koebele*); Tlacotalpam, April 19, 1898, on leaves of

a small palm in a tub at the hotel, also on *Croton*, at the same place, det. Tinsley (*Townsend*).

Originally described from Jamaica. It has occurred independently to Prof. Tinsley and myself that this species may possibly be Signoret's *D. indicus*; but if this is the case, only the examination of Signoret's types can prove it.

3. *Dactylopius nipæ*.

Dactylopius nipæ, Maskell, Trans. New Zeal. Inst. xxv. p. 232.

Hab. MEXICO: Jicaltepec in Vera Cruz (*Townsend*).

Not seen by me. Originally described from Demerara.

4. *Dactylopius pseudonipæ*.

Dactylopius pseudonipæ, Ckll. Science Gossip, April 1897, p. 302.

Hab. MEXICO: Vera Cruz, April 23, 1898, on coco-nut palm; and Coatzacoalcos, April 24, 1898, on a large tree called "laurel"; det. Tinsley (*Townsend*).

5. *Dactylopius steeli*.

Bergrothia steeli, Ckll. & Twms. Ent. News, Oct. 1894, p. 263.

Hab. MEXICO: "El Paso, Mexico" (?Juarez); det. Tinsley (*Koebele*).

First described from the Mesilla Valley, New Mexico.

6. *Dactylopius olivaceus*.

Dactylopius olivaceus, Ckll. Bull. 4, Techn. Ser., Div. Ent., Dept. Agric. (1896) p. 36.

Hab. MEXICO: Ciudad Porfirio Diaz (*Townsend*).

Found on *Yucca*.

ASTEROLECANIINÆ.

LECANIODIASPIS, Targ.-Tozz.

1. *Lecaniodiaspis radiatus*.

Lecaniodiaspis radiatus, Ckll. Canad. Entom. 1897, p. 269.

Hab. MEXICO: near Salina Cruz (*Townsend*).

2. *Lecaniodiaspis manihotis*.

Prosopophora manihotis, Towns. Journ. N. Y. Ent. Soc. 1898, p. 172.

Hab. MEXICO: Cuautla (*Koebele*).

ASTEROLECANIUM, Targ.-Tozz.

1. **Asterolecanium pustulans.**

Planchonia pustulans, Ckll. Science Gossip, April 1893, p. 77.

Hab. MEXICO: Vera Cruz (*Cockerell*).

TACHARDIINÆ.

TACHARDIA, Blanchard.

1. **Tachardia mexicana.**

Carteria mexicana, Comst. Rep. U. S. Dep. Agric. for 1881, p. 212.

Hab. MEXICO: Tampico; Oaxaca (*Koebele*).

2. **Tachardia larreæ.**

Carteria larreæ, Comst. Rep. U. S. Dep. Agric. for 1881, p. 211.

Hab. MEXICO: see Comstock, 2nd Rep., Dept. Entom., Cornell Univ. Exp. Sta. (1883) p. 130.

Also occurs at Tucson, Arizona (*Toumey and Cockerell*), and at Tempe (*Cockerell*).

3. **Tachardia fulgens.**

Tachardia fulgens, Ckll. Psyche, July 1895, Suppl. p. 1.

Hab. MEXICO: Guaymas, on *Mimosa* or *Prosopis* (*Koebele*); Guaymas, on *Coursetia* (*Dr. Palmer*); Hermosillo, on *Coursetia glandulosa* (*Koebele*).

Specimens in coll. U. S. Dept. Agric. Described from Arizona.

4. **Tachardia nigra.**

Tachardia nigra, Towns. & Ckll. Journ. N. Y. Ent. Soc. 1898, p. 172.

Hab. MEXICO: Orizaba (*Koebele*).

5. **Tachardia fulvoradiata.**

Tachardia fulvoradiata, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 431.

Hab. MEXICO: Rancho Carbonel near Frontera (*Townsend*).

KERMESINÆ.

KERMES, Boitard.

Kermes, Boitard, Man. d'Entom. ii. p. 171 (1828).

Boitard is the earliest author I have yet found using *Kermes* (not *Chermes*) as a true generic name, including the species we now refer to it. Of course Kermès, as a popular term, appears in many earlier works.

BIOL. CENTR.-AMER., Rhynch. Homop., Vol. 11. Pt. 2, December 1899. †2

1. *Kermes grandis*.

Kermes grandis, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 431.

Hab. MEXICO: Amecameca (*Koebele*).

2. *Kermes nigropunctatus*.

Kermes nigropunctatus, Ehrhorn & Cockerell, Ent. News, Oct. 1898, p. 186.

Hab. MEXICO: mouth of San Diego Cañon, Sierra Madre, State of Chihuahua, on live oak, May 22, 1899 (*Townsend*).

Originally described from California. The Sierra Madre insect resembles the form first received from Mr. Ehrhorn, collected at Los Angeles. Specimens found by Mr. Ehrhorn at San Jacinto, Calif., April 1889, are very pale and show distinct if shallow transverse sulci.

LECANIINÆ.

LECANIUM, Illig.

1. *Lecanium hesperidum*.

Lecanium hesperidum (L.), Burm. Handb. der Ent. ii. p. 69 (1835).

Hab. MEXICO: various localities; see Townsend, Journ. N. Y. Ent. Soc., Dec. 1897, p. 183; Tlacotalpam, on *Abutilon* in a pot at the hotel (*Townsend*).

2. *Lecanium terminaliæ*.

Lecanium terminaliæ, Ckll. Journ. Inst. Jamaica, 1893, p. 254.

Hab. MEXICO: Vera Cruz (*Cockerell*).

Originally described from Jamaica.

3. *Lecanium schini*.

Lecanium schini, Ckll. La Naturaleza, (2) ii. p. 304 (1893); Bull. Soc. Zool. Fr. xviii. p. 167.

Hab. MEXICO: Guanajuato (*Dugès*); Frontera, on "nancem," a tree about as big as an apple-tree, with beautiful orange-coloured flowers and an edible yellow fruit about the size of a plum, May 12, 1897 (*Townsend*).

The egg-shells of this species are covered with little prominences, as seen in the Frontera material. The legs are shorter in the Frontera form than in the type. Also on an *Hibiscus*-like shrub at Frontera, April 29 (*Townsend*).

4. *Lecanium impar*.

Lecanium impar, Ckll. Entomologist, 1898, p. 131.

Hab. MEXICO: Las Minas in Tabasco (*Townsend*); San Antonio del Sapotal, Tabasco, on "Tacoq," June 4, 1897 (*Townsend*).

5. ***Lecanium longulum*.**

Lecanium longulum, Douglas, Ent. Monthly Mag. 1887, p. 97.

Hab. MEXICO: Frontera, on "nancem," June 25 (*Townsend*); PANAMA, 1898 (*Dolby-Tyler*).

6. ***Lecanium sallei*.**

Lecanium sallei, Sign. Essai sur les Cochenilles, p. 240 (1873).

Hab. MEXICO (*Sallé*).

7. ***Lecanium imbricatum*.**

Lecanium imbricatum, Ckll. Bull. 4, Techn. Ser., Div. Ent., Dept. Agric. (1896) p. 38.

Hab. MEXICO: Alta Mira in Tamaulipas (*Townsend*); Frontera, on an unknown tree, May 1897 (*Townsend*).

Two varieties of this species were also found, as follows:—

L. imbricatum, var. Male scales rather broader and clearer than in type. Female apparently without the brown glands.—On a shrub in woods (leaves 6 to 7 inches long, $2\frac{1}{2}$ wide, lighter green and not glabrous below), Frontera, Tabasco, April 14, 1897 (*Townsend*).

L. imbricatum, var. Female scale about 6 millim. long, $3\frac{1}{2}$ broad, 2 high; rather elongate-oval, flattish, dull, pale brown, with very large and deep punctures, except in the middle of the dorsum. The scale itself is shiny, but it is covered by a dirty-looking layer of wax, which gives it a dull and almost woolly appearance. The following measurements (in μ) are by Mr. Parrott: femur 39 long by 50 broad; tibia + tarsus 56 long, 42 broad at base. Antennæ 75μ long, 45 broad at base, last segment 19 broad at base. Circular glands 14μ diameter. Male scales glassy, quite broad, overlapping one another.—Tlacotalpam, April 20, 1898, on branches, twigs, and leaves of "limon real," i. e. shaddock (*Townsend*).

8. ***Lecanium chilaspidis*.**

Lecanium chilaspidis, Ckll. Canad. Entom. 1897, p. 268.

Hab. MEXICO: Tehuantepec city (*Townsend*).

The name of the plant on which this was found, "*Chilaspis*," is wrong, and is probably a blunder for *Chilopsis*; nevertheless, the specific name of the insect can remain.

9. ***Lecanium tubuliferum*.**

Lecanium tubuliferum, Ckll. Entomologist, 1898, p. 132.

Hab. MEXICO: Amecameca (*Koebele*).

This is a doubtful *Lecanium*. It may prove to be an immature state of *Kermes grandis*.

10. *Lecanium oleæ*.

Kermes oleæ, Bernard, Mém. Hist. Nat. Provence, ii. p. 275, t. 2. fig. 25 (1788).

Hab. MEXICO: various localities; see Townsend, Journ. N. Y. Ent. Soc. 1897, p. 184; PANAMA: on *Psidium* (*Dolby-Tyler*).

mirandum, Ckll. & Parrott, subsp. nov.

♀. Scale $3\frac{1}{2}$ millim. long, $2\frac{1}{2}$ broad, 2 high; hemispherical, with vague but discernible indications of the H-ridges of *L. oleæ*. Brown, varying from a dark chestnut to ochreous, the lighter forms showing under a lens innumerable yellow specks crowded on a dark ground; in addition, the scale is spotted all over with raised points of white glassy secretion, giving it a remarkably pretty appearance.

Skin with the usual polygonal markings of *Saissetia*; the polygons vary from $28 \times 47 \mu$ to $39 \times 42 \mu$, with the central gland 14×19 to $16 \times 19 \mu$.

Legs with the coxa 99–115 μ ; femur with trochanter 182–190; tibia 151–152; tarsus 90–99; claw 16.

Antennæ 8-segmented, segments measuring in μ :—(1) 39–42, (2) 33, (3) 59–62, (4) 45–59, (5) 19–39, (6) 17–31, (7) 12–22, (8) 39. One 7-segmented antenna was found, with these measurements:—(1) 39, (2) 36, (3) 59, (4) 56, (5) 17, (6) 25, (7) 47.

Newly-hatched larva (dried) dull brownish orange varying to apricot colour, without markings.

Hab. MEXICO: Tlacotalpam in Vera Cruz, April 19, 1898, on *Abutilon*, sp., in a pot at the hotel (*Townsend*).

This was described as a distinct species, but since then specimens have been seen which connect it with *L. oleæ*.

11. *Lecanium hemisphæricum*.

Lecanium hemisphæricum, Targioni-Tozzetti, Studi sulle Cocciniglie, 1867, p. 27.

Hab. MEXICO: Laguna, Carmen I. (*Townsend*); PANAMA: on *Gardenia* (*Dolby-Tyler*).

This is *L. coffeæ* of authors, but probably not of Walker, whose brief description indicates *L. oleæ* rather than *L. hemisphæricum*. This was pointed out to me by Mr. Theo. Pergande, who further states that he saw some authentic *L. coffeæ* in the Berlin Museum last year, and they were *L. oleæ*.

Prof. Townsend has more recently found it at Vera Cruz, Mexico, on potted plants of *Gardenia* brought from Orizaba.

12. *Lecanium tuberculatum*.

Lecanium tuberculatum, Twms. & Ckll. Journ. N. Y. Ent. Soc. 1898, p. 177.

Hab. MEXICO: San Antonio del Sapotal, near Frontera (*Townsend*).

13. *Lecanium townsendi*.

Lecanium townsendi, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 433.

Hab. MEXICO: Frontera (*Townsend*).

14. *Lecanium castilloæ*.

Lecanium castilloæ, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 436.

Hab. MEXICO: Frontera (*Townsend*).

15. *Lecanium nocturnum*, Ckll. & Parrott, sp. n.

Closely allied to *L. phoradendri*, Ckll., from Arizona.

♀. Scale broad-oval, moderately convex, rather rough and somewhat dull, black, irregularly mottled in the subdorsal region with reddish-brown or dull orange; or occasionally all black. Length 4 millim., breadth nearly $3\frac{1}{2}$, height $1\frac{1}{2}$.

Young scales are dull olive-green, usually mottled with blackish.

The female after boiling in caustic alkali becomes translucent, and presents a submarginal light brown granular area, on which are many large rounded hyaline spots. (In *L. phoradendri* the light brown area is much further from the margin, and does not show large hyaline spots, but only scattered hyaline dots.) Marginal spines simple, very slender. Stigmatal spines in threes, the middle (long) one 42 to 56 μ long, the others 11 to 16 μ . Digitules ordinary; those of claw stout, of tarsus filiform. Antennæ 7-segmented. One abnormal antenna was only 6-segmented, with segment 6 53 μ long.

Newly-hatched larva (dried) olive-green, with a dark dorsal shade.

♂. Scale glossy, as usual in the genus, with a faint greenish tint; two transverse sutures on each side and two at the anterior end.

The following measurements (in μ) of *L. nocturnum* and *L. phoradendri* will be found useful:—

♀. Antennal segments	1.	2.	3.	4.	5.	6.	7.
<i>L. nocturnum</i>	36-42	42-47	42	54-56	18	17-20	42-50
<i>L. phoradendri</i>	33-45	42-45	33-42	56-73	17	19	29
♀. Legs	Coxa.	Trochanter and femur.		Tibia.	Tarsus.	Claw.	
<i>L. nocturnum</i>	99-115	165		90-107	74-82	16-18	
<i>L. phoradendri</i>	115	165		105	88	24	

Hab. MEXICO: Alvarado in Vera Cruz, April 22, 1892, on a bush called "huele de noche" (*Townsend*).

The scales are numerous on the bark.

16. *Lecanium (Saissetia) inflatum*, Ckll. & Parrott, sp. n.

♀. Scale very convex, subglobular; 11 millim. long, $7\frac{1}{2}$ broad, 7 high, varying to $8\frac{2}{3}$ long, $6\frac{2}{3}$ broad, $6\frac{1}{2}$ high. Coffee-brown of various shades, sometimes quite a pale (café au lait) colour, fairly shiny, more or less pruinose with white powder, smooth, under a lens seen to be minutely and very closely spotted; extreme sides inclined to be roughened or slightly malleate; margin blackish.

Skin with the polygons of *Saissetia*, these almost circular, diam. 22-33 μ ; some are oval, $44 \times 25 \mu$, with the central gland $16 \times 22 \mu$.

Antennæ and legs rudimentary. Antennæ 157 μ long, short and thick, segmentation obscure, end broadly rounded. Last segment 16 μ long, 18 broad; penultimate one 14 μ long, 24 broad; second from last 14 μ long, 40 broad; third from last 41 μ long, 66 broad. Legs thick and short, femur 59-70 μ long, 70 μ at broadest; tibia 42 μ long, 36 broad; tarsus 28-33 μ long, 28-36 μ broad at base, 22-25 at end; claw stout and hooked, 14 μ long.

♂. Scale flattened, transparent, glassy, with a well-defined dorsal area, crossed about the middle of the posterior half by one suture; the usual two transverse sutures on each side from the dorsal area to the margin, and the pair of anterior sutures.

♂. Scarlet, with strongly iridescent wings; costal nervure pink.

Hab. MEXICO: Coatzacoalcos in Vera Cruz, April 24, 1898, on large tree called "laurel" (*Townsend*).

The female scales occur on the branches, the males on the leaves. This is a globular species with the skin of a *Saissetia*, recalling *L. verrucosum*, Signoret.

17. *Lecanium tolucanum*.

Lecanium (Saissetia) tolucanum, Parrott & Ckll. Industrialist, 1899, p. 164.

Hab. MEXICO: Toluca, State of Mexico, on a potato plant, Aug. 1, 1897 (*Koebele*, 1699).

18. *Lecanium sonorensense*.

Lecanium sonorensense, Ckll. & Parrott, Industrialist, 1899, p. 161.

Hab. MEXICO: Hermosillo, on *Beloperone californica*, Benth., April 22, 1897 (*Koebele*, 1711).

Subgen. TOUMEYELLA, Ckll.

19. *Lecanium mirabile*.

Lecanium mirabile, Ckll. Psyche, July 1895, Suppl. p. 3.

Hab. MEXICO: Aguas Calientes, May 1, 1898, on *Prosopis* (*Townsend*).

Originally described from Arizona.

Subgen. PSEUDOKERMES, Ckll.

20. *Lecanium armatum*.

Lecanium armatum, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 436.

Hab. MEXICO: San Francisco el Real, Tabasco (*Townsend*).

Subgen. EULECANIUM, Ckll.

21. *Lecanium perditum*.

Lecanium perditum, Ckll. Canad. Entom. 1897, p. 267.

Hab. MEXICO: Xcolak in Yucatan (*Townsend*).

22. *Lecanium subaustrale*.

Lecanium subaustrale, Ckll. Entomologist, 1898, p. 131.

Hab. MEXICO: Amecameca (*Koebele*).

23. *Lecanium armeniacum*.

Lecanium armeniacum, Craw, Rep. California State Board of Hort. for 1891 (1892), p. 197.

Hab. MEXICO: Guanajuato, on peach (*Dugès*).

I had taken this for a form of *L. persicæ*, but Mr. Pergande finds it identical with Californian examples of *L. armeniacum*, collected by Mr. Ehrhorn.

24. *Lecanium quercitrionis*.

Lecanium (Eulecanium) quercitrionis, Fitch, Trans. N. Y. State Agric. Soc. 1858, p. 805; Cockerell & Parrott, Industrialist, April 1899, p. 232.

Hab. MEXICO: Soldado Cañon, Sierra Madre, State of Chihuahua, about 7000 feet, June 7, 1899, on scrub oak (*Townsend*).

The specimens belong to a dark and very convex variety, which also occurs in Southern Arizona.

LECANOPSIS, Targ.-Tozz.

1. **Lecanopsis dugesi.**

Lecanopsis dugesi, Sign. & Licht. Bull. Soc. Ent. France, 1886, p. xxxix.

Hab. MEXICO.

This is a very uncertain species, never properly described. It is said to be 4 to 5 millim. long, 3 millim. broad, reddish-brown, covered with a white waxy pellicle: antennæ 7-segmented. Quite possibly it is *Ceroplastodes niveus*.

CEROPLASTODES, Ckll.

1. **Ceroplastodes niveus.**

Fairmairia nivea, Ckll. Entomologist, 1893, p. 350.

Hab. MEXICO: Montezuma in Chihuahua (*Cockerell*); Mixcoac, on *Mimosa*, 1897 (*Koebele*); Aguas Calientes, Jan. 5, 1891 (*H. Osborn*).

This may have to be called *Ceroplastodes dugesi* (Sign. & Licht.).

CTENOCHITON, Maskell.

1. **Ctenochiton aztecus.**

Ctenochiton aztecus, Twms. & Ckll. Journ. N. Y. Ent. Soc. 1898, p. 176.

Hab. MEXICO: Arroyo San Isidro, near Frontera (*Townsend*).

INGLISIA, Maskell.

1. **Inglisia malvacearum.**

Inglisia malvacearum, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 432.

Hab. MEXICO: Morelos (*Koebele*); Cuautla (*Koebele*).

SCHIZOCHLAMIDIA, Ckll., gen. nov.

Type *S. mexicana*. A Lecaniine Coccid, lacking legs and antennæ in the adult; covered by a glassy scale which is divided into two parts longitudinally, and has not the rows of air-cells of *Inglisia*. The scale differs from that of *Platinglisia* in being convex, and not having the peculiar dorsal groove. It is just like *Fairmairia* externally, but lacks legs and antennæ. It may be remarked that the name *Fairmairia*, Signoret, 1874, is a homonym of *Fairmairia*, Desv. 1863. The latter name, however, appears to be obsolete. It was at first intended to call this genus *Schizochlamys*, but that name belongs to a genus of Algæ. It may be considered permissible to use the same generic name in zoology and botany, but it certainly is not desirable.

1. **Schizochlamidia mexicana**, Ckll. & Parrott, sp. n.

♀. Dark brown, with large ochreous spots, shiny, about $2\frac{1}{2}$ millim. long and rather over 2 broad, *Lecanium*-like, moderately convex, covered by a semitransparent white glassy scale, which consists of two portions,

being divided longitudinally. Each portion of the glassy scale has a low eminence, from which lines radiate and round which concentric striæ run. Removed from the twig, the insect leaves a white mark. Skin after boiling irregularly mottled with brown, translucent. Anal plates in a rounded opening, the margins of which are brown (chitinous) and thickened. Median line with a longitudinal band of minute gland-dots. Anal ring with six bristles. Marginal spines simple, fairly large, numerous, distance from one to the next varying from 33 to 115 μ .

Larva with well-developed legs; coxa 34 μ , femora with trochanter 64-98 μ , tibia 56-70 μ , tarsus 59 μ , claw 12 μ .

♂. Dark reddish-brown; wings dull hyaline, like ground glass, with a well-defined reddish costal nervure. Length of wing 961 μ ; breadth 497 μ . Genital spike long, 282 μ .

♂. Scale about 1¼ millim. long, glassy, roughened, with no defined dorsal area nor white sutures, but a distinct glassy cap placed dorsally at the hinder end.

Hab. MEXICO: Vera Cruz (city), April 28, 1898, on *Mimosa* with big thorns which are inhabited by stinging ants (*Pseudomyrma*, sp.) (*Townsend*).

It is to be remarked that there are two types of male scale among the Lecaniinæ—that of *Lecanium* and that of *Schizochlamidia*, *Lecanochiton*, and *Ctenochiton*. In the first there is a well-defined dorsal area, from which radiate transverse sutures, and there is no cap at the hinder end; in the second there is a cap, and the dorsal area is lacking. This difference, combined with certain peculiarities of the female, might be held to indicate two tribes, to be called Lecaniini and Ctenochitonini. The following notes will assist in the further elucidation of this matter:—

CTENOCHITONINI.

Cryptes, having the cap, will fall in this series, though the ♂ scale is peculiar.

Ceroplastodes daleæ, Ckll.: ♂ scale glassy, strongly tuberculate all over; the glassy cap exists, but is tuberculate like the rest of the surface, and its suture is hardly discernible.

Ceroplastodes niveus, Ckll.: ♂ scale also very rough, but the cap is very distinct, and has on it two whitish lines forming a narrow V; these are also more or less discernible in *C. daleæ*.

LECANIINI.

Pulvinaria paradelpha, Ckll. & Lidgett, has a *Lecanium*-like scale, but with more sutures.

Lichtensia lutea (Ckll.): ♂ scale glassy, transparent, *Lecanium*-like, but the dorsal area convex, and only one pair of lateral sutures, those on the posterior half.

Lecanium strachani, Ckll.: ♂ scale has the dorsal area so narrow as to be practically a single ridge, the transverse sutures obliterated, and a vaguely indicated small cap. Thus both in the male and female this peculiar species tends towards the Ctenochitonini. (For the ♀, see Entom. xxxi. p. 259.)

VINSONIA, Sign.

1. *Vinsonia stellifera*.

Vinsonia stellifera (Westwood), Douglas, Ent. Monthly Mag., Dec. 1888, p. 152.

Hab. CENTRAL AMERICA.

Mr. Alex. Craw found this on an orchid from Central America, locality unknown.

CEROPLASTES, Gray.

1. *Ceroplastes floridensis*.

Ceroplastes floridensis, Comstock, Rep. U. S. Dept. Agric. for 1880, p. 331.

Hab. MEXICO: Balantam in Yucatan (*Townsend*); Minatitlan, April 25, 1898, on orange and mango (*Townsend*); Cordova, April 29, on mango (*Townsend*); Paraje Nuevo, April 29, on orange (*Townsend*); Frontera, Febr. 28, 1897, on *Ficus laurifolia* (*Townsend*); PANAMA: outskirts of the city, on mango, akee, guava, and lime-trees (*Dolby-Tyler*).

2. *Ceroplastes cirripediformis*.

Ceroplastes cirripediformis, Comstock, Rep. U. S. Dept. Agric. for 1880, p. 333.

Hab. MEXICO.

Specimens from San Rafael, Vera Cruz (*Townsend*), not seen by me, have been referred with doubt to this species.

3. *Ceroplastes mexicanus*.

Ceroplastes mexicanus, Ckll. Bull. 4, Techn. Ser., Div. Ent., U. S. Dept. Agric. (1896) p. 34.

Hab. MEXICO: Guaymas, San Luis Potosi and Tehuantepec city (*Townsend*); Guanajuato, on *Duranta plumieri* (*Dugès*).

4. *Ceroplastes irregularis*.

Ceroplastes irregularis, Ckll. Entomologist, 1893, p. 351.

Hab. MEXICO: Montezuma in Chihuahua (*Cockerell*).

Also found in New Mexico, and even north to Salida, Colorado (*Bethel*, specimens sent by *Gillette*).

5. *Ceroplastes cistudiformis*.

Ceroplastes cistudiformis, Ckll. & Twms. Zoe, 1893, p. 104.

Hab. MEXICO: Guanajuato (*Dugès*); Tampico (*Townsend*); Morenas, Oct. 18, 1897 (*Koebele*, 1569).

Also found at Clairmont, California, on a pepper-tree (*A. J. Cook*, in coll. U. S. Dept. Agric.).

6. *Ceroplastes roseatus*.

Ceroplastes roseatus, Twms. & Ckll. Journ. N. Y. Ent. Soc. 1898, p. 177; *Dolby-Tyler*, Trans. Ent. Soc. Lond. 1899, pp. 277-280, t. 8.

Hab. MEXICO: El Cuyo del Chicosapote, near Frontera (*Townsend*); PANAMA (*Dolby-Tyler*).

BIOL. CENTR. AMER., Rhynch. Homop., Vol. II. Pt. 2, December 1899. †3

The Mexican locality is taken from the label, but Prof. Townsend thinks it should be Arroyo San Isidro.

7. *Ceroplastes minutus*.

Ceroplastes minutus, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 434.

Hab. MEXICO: Las Minas in Tabasco (*Townsend*).

8. *Ceroplastes angulatus*.

Ceroplastes angulatus, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 434.

Hab. MEXICO: Frontera (*Townsend*).

9. *Ceroplastes coloratus*.

Ceroplastes coloratus, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 435.

Hab. MEXICO: Las Minas in Tabasco (*Townsend*).

10. *Ceroplastes townsendi*, Ckll., sp. n.

♀. Waxy scale 6 millim. long, 5 broad, 3 high, flatter than that of *C. ceriferus* or *C. dugesi*; wax like that of *C. ceriferus*, yellowish-white, without plates or coloured nuclei; no lateral white stripes. On the under surface the wax shows very broad bands of chalk-white secretion.

Denuded female 3 millim. long, 2 broad; horn well developed, but hardly half the length of the female.

A high blunt dorsal longitudinal crest, which is quite absent in *C. dugesi* and *C. ceriferus*.

Antennæ 6-segmented, 4 longest. Claw-digitules with very large knobs. Margin with capitate spines.

The following table separates *C. townsendi* from its two nearest allies:—

A. Antennæ 6-segmented.

a. Segment 3 longest; dorsum of denuded female smooth and rounded *ceriferus*.

b. Segment 4 longest; dorsum of denuded female cristate *townsendi*.

B. Antennæ 7-segmented, 4 longest; dorsum of denuded female smooth *dugesi*.

Hab. MEXICO: Arroyo San Isidro, near Frontera, Tabasco, May 27, 1897, on bark of trunk of small shrub with lanceolate-ovate leaves (*Townsend*: Div. Ent. 7611).

Allied to *C. ceriferus* and *C. dugesi*, but differs in the small depressed scale and in the antennæ.

11. *Ceroplastes dugesi*.

Ceroplastes dugesi, Townsend, Zoe, iii. pp. 255–257 (1892).

Hab. MEXICO: Cuautla (*Townsend*); San Rafael in Vera Cruz (*Townsend*); Guana-juato (*Dugès*).

Lichtenstein briefly noticed, but did not describe, this species in Bull. Soc. Ent. France, 1885, p. cxli.

This includes what has been recorded as *C. ceriferus* (Anders.), Signoret.

12. Ceroplastes albolineatus.

Ceroplastes albolineatus, Ckll. Entom. News, 1894, p. 157.

Hab. MEXICO: Cuautla, May 31, 1897, on *Fuchsia* (*Koebele*: Div. Ent. 7612).

The two lateral white stripes at once separate this pink species from *C. roseatus*. The fourth antennal segment was long in these specimens, as in the original types.

LICHTENSIA, Sign.

1. Lichtensia lutea.

Pulvinaria lutea, Ckll. Ann. & Mag. Nat. Hist., July 1893, p. 51.

Hab. MEXICO: Colima, on wild fig (*Dr. Palmer*: coll. Div. Ent., U. S. Dept. Agric. 5229); Vera Cruz (*Cockerell*).

2. Lichtensia crescentiæ.

Lichtensia crescentiæ, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 435.

Hab. MEXICO: Frontera (*Townsend*). Also a slight variety on "achote," El Cuyo del Chico Sapote, Tabasco, June 18, 1897 (*Townsend*: Div. Ent. 7842).

3. Lichtensia mimosæ.

Lichtensia mimosæ, Twms. & Ckll. Journ. N. Y. Ent. Soc. 1898, p. 175.

Hab. MEXICO: Las Minas, near Frontera (*Townsend*).

PULVINARIA, Targ.-Tozz.

1. Pulvinaria simulans.

Pulvinaria simulans, Ckll. Journ. Trinidad Field-Nat. Club, 1894, p. 310.

Hab. MEXICO: Monterey in Nuevo Leon (*Townsend*).

Specimens from Tehuantepec city, doubtfully referred to *P. camellicola*, but not seen by me, are probably *P. simulans*. They were collected by Townsend.

2. Pulvinaria parvula, Ckll., sp. n.

♀. Scale about 3 millim. long, with ovisac $5\frac{1}{2}$ millim. Scale dark reddish-brown; ovisac white, firm, closely woven, convex in a transverse direction, not ribbed. Immature female ferruginous, having much the shape of *Lecanium hesperidum*.

♀. Adult. Marginal spines simple, fairly large, numerous, distance from one to the next about equal to the length of one; length of a spine 33μ . Skin after boiling colourless and transparent. Coxa 331μ ; femur and trochanter 397; tibia 232; tarsus 108; claw 33; tarsal digitules filiform, 66μ ; claw-digitules expanded to a large knob. Antennæ 9-segmented, segments measuring thus in μ :—(1) 50, (2) 50, (3) 116, (4) 83, (5) 50, (6) 33, (7) 48, (8) 33, (9) 50.

Hab. MEXICO: Cuautla, July 2, 1897, on *Mimosa*, sp. (*Koebele*, 1729: Div. Ent. 7921).

Readily known by its small size and 9-segmented antennæ.

CONCHASPINÆ.

CONCHASPIS, Ckll.

1. *Conchaspis angræci*, var. *hibisci*.

Conchaspis angræci, var. *hibisci*, Ckll. Bull. 4, Techn. Ser., Div. Ent., U. S. Dept. Agric. (1896) p. 36.

Hab. MEXICO: Tampico (*Townsend*).

2. *Conchaspis newsteadi*.

Conchaspis newsteadi, Ckll. Canad. Entom. 1897, p. 270.

Hab. MEXICO: Vera Cruz (*Townsend*).

DIASPINÆ.

ASPIDIOTUS, Bouché.

Subgen. EVASPIDIOTUS, Leonardi.

1. *Aspidiotus hederæ*.

Chermes hederæ, Vallot, Séance Acad. Dijon, 1829, p. 32.

Hab. MEXICO: Guadalajara (*Townsend*); Oaxaca (*Koebele*); Chihuahua city (*Townsend*); Aguas Calientes (*Townsend*); San Luis Potosi (*Townsend*); Matamoros (*Townsend*); Morelia, on "trueno," Dec. 2, 1897 (*Townsend*); Mexico city, on "trueno," April 30, 1898 (*Townsend*). Var. *nerii* (Bouché): Mexico city, April 30, 1898 (*Townsend*); Rancho (?), Guaymas, April 27, 1897 (*Koebele*).

The var. has the female scale white.

2. *Aspidiotus vagabundus*, Ckll., sp. n.

♀. Scale about $1\frac{1}{2}$ millim. diam., circular, very slightly convex, very pale ochreous, or greyish from a coating of extraneous particles; exuviae halfway between the centre and the margin, marked by a concolorous boss, when rubbed shining straw-colour.

♀. Four groups of circumgenital glands; anterior laterals of 6 to 8, posterior laterals of 5 to 7. Three pairs of lobes, all short, and rounded at the ends; median lobes considerably the largest, separated by a rather wide interval, in which are two fimbriated squames; second and third lobes quite small, considerably shorter than the squames, which are strongly fimbriated; there are four especially long squames just beyond the third lobe, all deeply serrated on their outer margin; spines fairly well developed; no glandular processes at the base of the lobes or in the interlobular intervals; anal orifice some distance from the hinder end.



Aspidiotus vagabundus, Ckll.

Hab. MEXICO: Mexico city, on bark of ash, April 30, 1898 (*Townsend*).

It is hardly possible that this is a native of Mexico, as it belongs to an Old-World group, and apparently comes close to Maskell's *A. dysoxylæ*. Prof. E. Henry ('Feuille des Jeunes Naturalistes,' June 1898) has indicated an *Aspidiotus fraxini* from Europe but it proves that the name was based on a *Mytilaspis*.

Subgen. DIASPIDIOTUS (Berl. & Leon.), Ckll.

3 *Aspidiotus townsendi*.

Aspidiotus townsendi, Ckll. Bull. 4, Techn. Ser., Div. Ent., U. S. Dept. Agric. (1896) p. 32.

Hab. MEXICO: Ciudad Porfirio Diaz (*Townsend*).

Also occurs at Phoenix, Arizona, on *Fraxinus* (*Cockerell*).

4. *Aspidiotus jatrophæ*.

Aspidiotus jatrophæ, Twms. & Ckll. Journ. N. Y. Ent. Soc. 1898, p. 178; Newell, Contr. Dep. Zool. & Ent. Iowa Agricultural College, no. 3 (1899), p. 23, figs. 5, 6.

Hab. MEXICO: Frontera (*Townsend*). Also a variety with lateral exuviae and a convex scale, Frontera, on "barenjeno chiquito," June 9, 1897 (*Townsend*); for this Mr. Wilmon Newell has proposed the name *parrotti*.

The variety could be taken for *A. crawi*, but it has not the circumgenital glands of that species. Also a variety with the scale a little smaller, more convex, lighter, with more lateral exuviae, Ometusco, April 29, 1898, on a malvaceous shrub or tree called "malvon," with crimson flowers (*Townsend*). Also this species on "chaya," *Jatropha*, sp., Minatitlan, April 25, 1898 (*Townsend*).

5. *Aspidiotus subsimilis*.

Aspidiotus subsimilis, Ckll. Ann. & Mag. Nat. Hist., Febr. 1899, p. 168.

Hab. MEXICO: Cuautla (*Koebele*); Hermosillo (*Koebele*).



Aspidiotus subsimilis, Ckll. From Cuautla.

6. *Aspidiotus cyanophylli*.

Aspidiotus cyanophylli, Sign. Essai sur les Cochenilles, p. 93 (1869).

Hab. MEXICO: Mazatlan, found by Mr. Craw on coco-nuts from that place; Orizaba, April 29, 1898, on "trueno" (*Townsend*); Mexico city, April 30, 1898, on a liliaceous plant called "hiburnio" (*Townsend*).

Described by Signoret from specimens found upon *Cyanophyllum magnificum*, a Venezuelan plant introduced into Europe.

Sect. *HEMIBERLESIA*, Ckll.*

7. *Aspidiotus cydoniæ*.

Aspidiotus cydoniæ, Comst. Rep. U. S. Dept. Agric. for 1880, p. 295.

Hab. MEXICO: Frontera, on "China tree" (*Townsend*); Vera Cruz, April 23, 1898, on "huasimo," a tree (*Townsend*).

According to Marlatt, *A. cydoniæ* is conspecific with *A. lataniæ*. I am not at present able to decide whether the differential characters are varietal or specific.

8. *Aspidiotus crawi*.

Aspidiotus crawi, Ckll. Bull. 6, Techn. Ser., Div. Ent., U. S. Dept. Agric. (1897) pp. 5, 8, 9, 23.

Hab. MEXICO: Frontera (*Townsend*); Tlacotalpam, April 21, 1898, on a wild tree called "amate," with trueno-like leaves, rounded at the end (*Townsend*).

9. *Aspidiotus tricolor*.

Aspidiotus tricolor, Ckll. Canad. Entom. 1897, p. 266.

Hab. MEXICO: near Salina Cruz (*Townsend*).

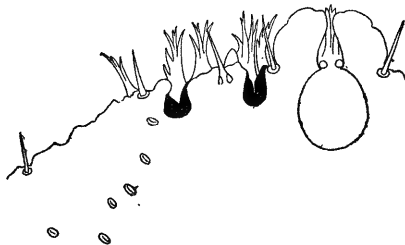
10. *Aspidiotus palmæ*.

Aspidiotus palmæ, Morg. & Ckll. Ent. Monthly Mag. 1893, pp. 40, 80.

Hab. PANAMA: outskirts of the city (*Dolby-Tyler*).

11. *Aspidiotus lucumæ*, Ckll., sp. n.

♀. Scale suboval, about $1\frac{1}{2}$ by 1 millim., fairly convex, pale yellowish, very rough, the exuviae forming a whitish boss, which is apical but not central. Removed from the bark, the scales leave a distinct white film. In young scales the exuviae exhibit a white dot and ring.



Aspidiotus lucumæ, Ckll.

♀. No group of circumgenital glands. Only one distinct pair of lobes; these large, close together, with the large anal orifice at their base. The second lobe is represented by a minute lobule, easily overlooked.

* On Sept. 28, 1899, Mr. Alex. Craw quarantined at San Francisco some fruits of pomegranate, believed, but not certainly known, to come from Mazatlan. On them were *Aspidiotus rapax*, Comst., and *Chrysomphalus aurantii* (Maskell). This is the only evidence for the occurrence of these species in Mexico.

Spines and squames well developed, the latter strongly fimbriate. In Leonardi's table (1897) of *Hemiberlesia* this species works down to *A. camellicæ* (i. e. *rapax*), from which it may be separated at once by the form of the scale. It differs from *A. cupressi* by having the median lobes close together.

Hab. MEXICO: Esperanza, April 29, 1898, crowded on the bark of a *Mammea Sapota* tree (*Townsend*).

12. *Aspidiotus*, sp.

Hab. MEXICO: Juarez, State of Chihuahua, on *Melia azedarach*, March 6, 1899 (*P. J. Parrott*).

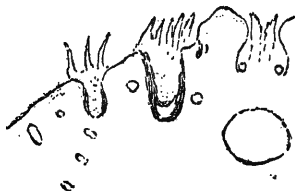
Also occurs at Deming, New Mexico, on *Populus* (*Cockerell*).

This species agrees well with the description of *A. convexus*, Comst. (Rep. U. S. Dept. Agric. for 1880, p. 295), but I am informed by Mr. C. L. Marlatt that it is different. He will shortly publish a description of it elsewhere.

13. *Aspidiotus cupressi*.

Aspidiotus cupressi, Ckll. Ann. & Mag. Nat. Hist., Febr. 1899, p. 168.

Hab. MEXICO: Toluca, on *Cupressus* (*Koebele*).



Aspidiotus cupressi, Ckll.

14. *Aspidiotus lataniae*.

Aspidiotus lataniae, Sign. Essai sur les Cochenilles, p. 98 (1869).

Aspidiotus greenii, Ckll. Bull. 6, Techn. Ser., Div. Ent., U. S. Dept. Agric. (1897) p. 27, fig. 7.

Aspidiotus cydoniae, Green, Coccidæ of Ceylon, pt. i. p. 46 (nec Comst.).

Hab. MEXICO: El Cuyo del Chico Sapote, Tabasco (*Townsend*); Mexico city (*Townsend*).

Subgen. TARGIONIA, Sign.

15. *Aspidiotus yuccæ*.

Aspidiotus yuccæ, Ckll. Bull. 4, Techn. Ser., Div. Ent., U. S. Dept. Agric. (1896) p. 32.

Hab. MEXICO: Ciudad Porfirio Diaz (*Townsend*).

Subgen. MYCETASPIS, Ckll.

16. *Aspidiotus personatus*.

Aspidiotus personatus, Comst. 2nd Rep., Dept. Ent., Cornell Univ. Exp. Sta. (1883) p. 66.

Hab. MEXICO: Acapulco (found on a coco-nut palm from thence) (*Craw*); Colima (found on an orange from thence) (*Craw*); Frontera (*Townsend*); Minatitlan, April 25, 1898, on mango (*Townsend*).

Subgen. SELENASPIDUS, Ckll.

17. *Aspidiotus articulatus*.

Aspidiotus articulatus, Morgan, Ent. Monthly Mag. 1889, p. 352.

Hab. MEXICO: Tampico, San Rafael, Laguna, Izamal, and Balantam (*Townsend*); Vera Cruz (*Cockerell*); Tlacotalpam, April 20, on "limon real," and April 21, on orange (*Townsend*); Minatitlan, April 25, 1898, on *Citrus* (*Townsend*); Paraje Nuevo in Vera Cruz, April 29, 1898, on orange (*Townsend*); Cordova, April 29, 1898, on mango (*Townsend*); Soledad in Vera Cruz, April 29, 1898, on tree called "guayado" or "guayano" (*Townsend*). PANAMA: on *Gardenia* (*Dolby-Tyler*).

Subgen. PSEUDAONIDIA, Ckll.

[Bull. 6, Techn. Ser., Div. Ent., Dep. Agric. p. 14 (1897).]

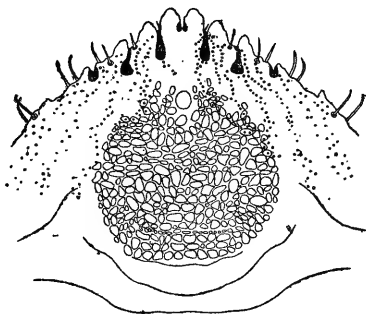
18. *Aspidiotus tesseratus*.

Aspidiotus (*Diaspidiotus*) *tesseratus*, de Charmoy, Proc. Soc. Amicale Scient. (Mauritius), 1899, p. 23, t. 1. figg. 2, 2 a-c.

♀. Scale circular to oval, about 3 millim. diam., slightly convex, dull dark sepia-brown, more or less encrusted with black and whitish particles; exuviae about halfway between the centre and margin, or sometimes nearly central, marked by a shining ferruginous boss. A thick ventral film.

♀. Dark brown when dried; after boiling in caustic soda transparent, with lobes, mouth-parts, and interlobular processes dark brown, and a large reticulated space in the anal region light yellow. Form suboval, segmentation well marked; thorax with a deep constriction as in *A. trilobitiformis*, Green. No circumgenital glands, even in females full of embryos. Four pairs of lobes, and a small pointed process representing a fifth lobe. Median lobes largest, close together, but not contiguous, broad, equilateral, notched on each side. Second and third lobes with the outer side oblique and notched. Four lobes pointed. Spines large. Many small dorsal glands.

Hab. MEXICO: Coatzacoalcos in Vera Cruz, April 24, 1898, on "tulipan," *Malva-viscus*, sp. (*Townsend*).—MAURITIUS.



Aspidiotus tesseratus, de Charm. From Coatzacoalcos.

Allied to *A. duplex*, Ckll., but easily known by the absence of circumgenital glands.

Since the above description was written, specimens of the same species have been received from Mr. d'Emmerez de Charmoy, who found it on the grape-vine in Mauritius. Doubtless this is much nearer its original locality than Mexico.

CHRYSOMPHALUS, Ashm.

1. *Chrysomphalus aonidum*.

Coccus aonidum, Linn. Syst. Nat. ed. x. p. 455 (1758).

Chrysomphalus ficus, Ashm. Amer. Entom. 1880, p. 267.

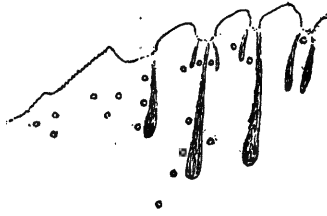
Hab. MEXICO: Tampico, Chihuahua, Matamoros, and Laguna (*Townsend*); Vera Cruz (*Cockerell*); Tlacotalpam, April 19, 1898, on a palm (*Townsend*); Orizaba, on "trueno," April 29, 1898 (*Townsend*); Vera Cruz, on a coco-nut palm, April 23, 1898 (*Townsend*). PANAMA: introduced on *Dictyosperma alba* from the Kingston Botanical Gardens (*Dolby-Tyler*).

The Linnean description of the female scale is excellent, and can apply to nothing else. This must not be confounded with *C. adonidum*.

2. *Chrysomphalus rhizophoræ*.

Chrysomphalus rhizophoræ, Ckll. Ann. & Mag. Nat. Hist., Febr. 1899, p. 169.

Hab. MEXICO: El Rio Polo, Tabasco, on mangrove (*Townsend*).



Chrysomphalus rhizophoræ, Ckll.

3. *Chrysomphalus dictyospermi*.

Aspidiotus dictyospermi, Morg. Ent. Monthly Mag. 1889, p. 352.

Hab. MEXICO: Oaxaca (*Koebele*); Cuautla (*Koebele*); ocean beach between El Faro and San Pedro, Tabasco, on rose, June 9, 1897 (*Townsend*); Minatitlan, on mango (*Townsend*). PANAMA: on *Dictyosperma alba* from the Kingston Botanical Gardens (*Dolby-Tyler*).

4. *Chrysomphalus perseæ*.

Aspidiotus perseæ, Comst. Rep. U. S. Dept. Agric. for 1880, p. 305.

Hab. MEXICO: Mazatlan (*A. de Cima*).

5. *Chrysomphalus reniformis*.

Aspidiotus reniformis, Ckll. Canad. Entom. 1897, p. 265.

Hab. MEXICO: Tehuantepec city (*Townsend*).

BIOL. CENTR.-AMER., Rhynch. Homop., Vol. II. Pt. 2, December 1899.

6. *Chrysomphalus scutiformis*.

Aspidiotus scutiformis, Ckll. Ann. & Mag. Nat. Hist., July 1893, p. 48.

Hab. MEXICO: Soledad in Vera Cruz (*Cockerell*); Victoria (*Townsend*); Monterey (*Townsend*); Acapulco, on *Citrus* fruit from thence (*Alex. Craw*).

7. *Chrysomphalus mimosæ*.

Aspidiotus mimosæ, Comst. 2nd Rep. Dept. Entom., Cornell Univ. Exper. Sta. (1883) p. 62.

Hab. MEXICO: Tampico.

8. *Chrysomphalus bowreyi*.

Aspidiotus bowreyi, Ckll. Ent. News, 1894, p. 59.

Hab. MEXICO: Frontera (*Townsend*).

Described from Jamaica.

9. *Chrysomphalus longissimus*.

Aspidiotus longissimus, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 439.

Hab. MEXICO: Frontera (*Townsend*).

10. *Chrysomphalus albopictus*.

Aspidiotus albopictus, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 433.

Hab. MEXICO: Cuernavaca (*Townsend*); Cuautla (*Koebele*). Var. *leonis* (Twins. & Ckll.): Linares in Nuevo Leon (*Townsend*); see Journ. N. Y. Ent. Soc. 1898, p. 179.

11. *Chrysomphalus koebelei*.

Aspidiotus koebelei, Twins. & Ckll. Journ. N. Y. Ent. Soc. 1898, p. 179.

Hab. MEXICO: Oaxaca (*Koebele*).

12. *Chrysomphalus agavis*.

Aspidiotus agavis, Twins. & Ckll. Journ. N. Y. Ent. Soc. 1898, p. 178.

Hab. MEXICO: Toluca (*Koebele*); also collected by Townsend, but locality-label lost.

13. *Chrysomphalus biformis*.

Aspidiotus biformis, Ckll. Canad. Entom., May 1894, p. 131.

Hab. CENTRAL AMERICA.

Mr. A. Craw found this on an orchid from Central America.

Sect. MELANASPIS, Ckll.

14. *Chrysomphalus nigropunctatus*.

Aspidiotus nigropunctatus, Ckll. Bull. 4, Techn. Ser., Div. Ent., U. S. Dept. Agric. (1896) p. 31.

Hab. MEXICO: San Luis Potosi (*Townsend*); Apam, April 29, 1898, on "trueno" (*Townsend*); Otumba, April 29, 1898, on "trueno" (*Townsend*); Rinconada Puebla,

April 29, 1898, on "trueno" (*Townsend*); Mexico city, April 30, 1898, on ash (*Townsend*); Amecameca (*Koebele*); Mixcoac (*Koebele*).



Chrysomphalus nigropunctatus, Ckll.



Chrysomphalus nigropunctatus, Ckll.

15. *Chrysomphalus lilacinus*.

Aspidiotus lilacinus, Ckll. Ann. & Mag. Nat. Hist., July 1898, p. 26.

Hab. MEXICO: Nogales, on black oak (*Koebele*); also on *Quercus undulata*. Mouth of San Diego Cañon, Sierra Madre, State of Chihuahua, on live oak, May 22, 1899 (*Townsend*).

16. *Chrysomphalus calurus*.

Aspidiotus calurus, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 440.

Hab. MEXICO: Orizaba (*Koebele*); Oaxaca (*Koebele*).

XEROPHILASPIS, Ckll.

This was named as a subgenus of *Aspidiotus*, but it seems nearer to *Aonidia*.

1. *Xerophilaspis prosopidis*.

Aspidiotus prosopidis, Ckll. Pysche, Dec. 1895, Suppl. p. 15.

Hab. MEXICO: Hermosillo, on *Prosopis juliflora*, April 24, 1897 (*Koebele*).

Also occurs at Tucson, Arizona (*Toumey and Cockerell*), and at Phoenix (*Cockerell*).

PSEUDODIASPIS, Ckll.

1. *Pseudodiaspis dentilobis*.

Aspidiotus dentilobis, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 438.

Hab. MEXICO: Cuautla (*Koebele*).

COMSTOCKIELLA, Ckll.

1. *Comstockiella sabalis*, var. *mexicana*.

Comstockiella sabalis (Comst.), var. *mexicana*, Ckll. Canad. Entom. 1897, p. 267.

Hab. MEXICO: region near Mazatlan.

FIORINIA, Targ.-Tozz.

1. *Fiorinia fioriniæ*.

Diaspis fioriniæ, Targ.-Tozz. Studi sulle Cocciniglie, 1867, p. 14.

Hab. MEXICO: in quantity on a coco-nut palm from Mexico (Mazatlan?), quarantined by Mr. Craw at San Francisco, Febr. 5, 1899.

DIASPIS, Costa.

1. *Diaspis calyptroides*.

Diaspis calyptroides, Costa, Faun. Nap., Emitt. Omott. p. 20 (1827).

Hab. MEXICO: Vera Cruz, on a succulent spiny shrub called "flor de Tampico," April 28, 1898 (*Townsend*); Vera Cruz, on a plant called "siempre viva," April 28 (*Townsend*); also from an unknown locality in Mexico, 1897 (*Koebele*).

Var. *opuntiae*.

Diaspis cacti, var. *opuntiae*, Ckll. Journ. Inst. Jamaica, 1893, p. 256.

Hab. MEXICO: Xcolak in Yucatan (*Townsend*).

Described from Jamaica.

2. *Diaspis persimilis*.

Diaspis persimilis, Ckll. Canad. Entom. 1897, p. 267.

Hab. MEXICO: Laguna, Carmen I. (*Townsend*).

3. *Diaspis pentagona*.

Diaspis pentagona, Targ.-Tozz. Bull. Soc. Ent. Ital. 1887, p. 185.

Diaspis amygdali, Tryon, Rep. Ins. and Fungus Pests, 1889, p. 89.

Hab. PANAMA, on *Capsicum* (*D. G. Fairchild*, 1899).

4. *Diaspis phoradendri*.

Diaspis phoradendri, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 437.

Hab. MEXICO: Cuautla (*Koebele*).

5. *Diaspis baccharidis*.

Diaspis baccharidis, Twms. & Ckll. Journ. N. Y. Ent. Soc. 1898, p. 179.

Hab. MEXICO: Amecameca (*Koebele*).

6. *Diaspis townsendi*, Ckll., sp. n.

♀. Scale dirty white to snow-white, max. diam. $1\frac{1}{2}$ millim., inclined to be more or less oval; exuviae rather dark reddish-brown, varying to yellowish, placed to one side of the centre.

♀. Five groups of circumgenital glands, median of 10, anterior laterals about 20, posterior laterals 9. Median lobes wide apart, strongly diverging, the long rounded inner edge minutely serrate or crenate, the apex projecting beyond the margin. Anal orifice decidedly posterior to posterior lateral glands. Other characters of female almost as in *Aulacaspis bromeliae*.

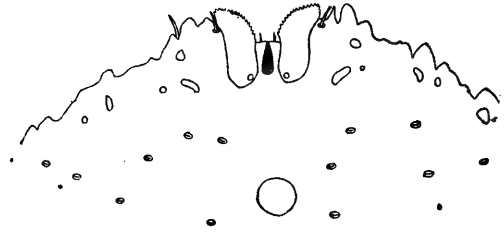
♂. Scale with only one keel, and that feeble; in some specimens woolly, resembling a Dactylopiid male pupa.

Hab. MEXICO: Aguas Calientes, May 1, 1898, on bark of *Prosopis* (*Townsend*); Leon in Guanajuato, May 1, 1898, on *Prosopis* (*Townsend*); Silao, May 1, 1898, on *Prosopis* (*Townsend*); Santa Barbara in Jalisco, May 1, 1898, on *Prosopis* (*Townsend*).

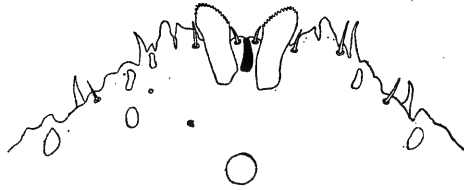
The specimens were collected as the train stopped at different points on the Mexican Central Railway.



Diaspis townsendi, Ckll. From Silao.



Diaspis townsendi, Ckll. From Jalisco.



Diaspis townsendi, Ckll. From Silao.

Belongs to a little group consisting of *D. townsendi*, Ckll., *D. toumeyi*, Ckll., and *D. fagrææ*, Green, between *Diaspis* and *Aulacaspis*. The female resembles *Aulacaspis*, but the male scale is as in *Diaspis*.

The species is very variable; the Silao form is to be considered the type.

AULACASPIS, Ckll.

1. *Aulacaspis miranda*.

Aulacaspis miranda, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 437.

Hab. MEXICO: Cuautla and Orizaba (*Koebele*).

2. *Aulacaspis rosæ*.

Diaspis rosæ, Sign. Essai sur les Cochenilles, p. 123 (1869).

Hab. MEXICO: Chihuahua (*Townsend*).

This species was originally described by Sandberg in 1784, but was first named by Bouché.

3. *Aulacaspis boisduvali*.

Diaspis boisduvalii, Sign. Essai sur les Cochenilles, p. 114 (1869).

Hab. MEXICO: Alta Mira in Tamaulipas (*Townsend*); El Cuyo del Chico Sapote in Tabasco (*Townsend*). Var. *tentaculata* (Morgan), on "pitahaya" (a cactus) at Frontera, June 5, 1897 (*Townsend*).

4. *Aulacaspis bromeliæ*.

Diaspis bromeliæ, Sign. Essai sur les Cochenilles, p. 116 (1869).

Hab. MEXICO: Tlacotalpam, April 21, 1898, on *Bromelia pinguin* (*Townsend*).

5. *Aulacaspis cattleyæ*, Ckll., sp. n.

♀. Scales white, with the exuviae pale and *marginal or nearly so*. Living female insect plump, *white* (the juices immediately turn bright yellow in caustic soda). Median lobes &c. as in *A. boisduvali*, not as in *A. bromeliæ*. Circumgenital glands: median 8, anterior laterals 11-20, posterior laterals 11-15.

Hab. MEXICO, on leaves of *Cattleya*; found by Mr. A. Craw, 1899, in the course of his horticultural quarantine work at San Francisco.

This is possibly a variety of *A. boisduvali*, but it seems to be a distinct species. It is what has passed as *A. cymbidii* (Bouché), and is figured by McIntire, Journ. Quekett Micr. Club, ser. 2, iii. pl. xxvi. The real *A. cymbidii* of Bouché was said to be from China, and had a yellow female, and the scale "eiförmig, flach, mit excentrischen Absätzen, an der zugespitzten Basis braun." It could hardly have been our insect; possibly it was a *Chionaspis*.

CHIONASPIS, Sign.

1. *Chionaspis citri*.

Chionaspis citri, Comst. 2nd Rep., Dept. Entom., Cornell Univ. Exp. Sta. (1883) p. 100.

Hab. MEXICO: Tampico, San Rafael, Laguna, and Izamal (*Townsend*); Paraje Nuevo in Vera Cruz, April 29, 1898, on orange (*Townsend*); Tlacotalpam, April 21, on orange (*Townsend*).

HEMICHIONASPIS, Ckll.

1. *Hemichionaspis minor*.

Chionaspis minor, Maskell, Trans. New Zeal. Inst. xvii. p. 33.

Hab. PANAMA, outskirts of the city, 1898 (*Dolby-Tyler*).

Described first from New Zealand.

PINNASPIS, Ckll.

1. *Pinnaspis pandani*.

Mytilaspis pandani, Comst. Rep. U. S. Dept. Agric. for 1880, p. 324.

Hab. PANAMA, introduced from Kingston Botanical Gardens, on *Rhysalidocarpus lutescens*, *Thrinax excelsa*, and *Dictyosperma alba* (*Dolby-Tyler*).

HOWARDIA (Berl. & Leon.), Ckll.

1. *Howardia biclavis*.

Chionaspis biclavis, Comst. 2nd Rep., Dept. Entom., Cornell Univ. Exp. Sta. (1883) p. 98.

Hab. MEXICO: locality unknown.

One of Mr. Craw's finds. Lately found also by Prof. Townsend, at Minatitlan, on "chaya," *Jatropha*, sp., April 25, 1898.

ISCHNASPIS, Dougl.

1. *Ischnaspis longirostris*.

Mytilaspis longirostris, Sign. Bull. Soc. Ent. Fr. 1882, p. xxxv.

Hab. PANAMA, introduced from Kingston Botanical Gardens, on *Rhysalidocarpus lutescens* (Dolby-Tyler).

PARLATORIA, Sign.

1. *Parlatoria proteus*, var. *pergandei*.

Parlatoria pergandii, Comst. Rept. U. S. Dept. Agric. for 1880, p. 327.

Hab. MEXICO: Matamoras (Townsend).

Var. *crotonis*.

Parlatoria proteus, var. *crotonis*, Douglas, Ent. Monthly Mag., April 1887, p. 242.

Parlatoria pergandei, var. *crotonis*, Ckll. Ann. & Mag. Nat. Hist., July 1895, p. 62.

Hab. PANAMA (Dolby-Tyler).

PSEUDOPARLATORIA, Ckll.

1. *Pseudoparlatoria parlatorioides*.

Aspidiotus parlatorioides, Comst. 2nd Rep., Dept. Entom., Cornell Univ. Exp. Sta. (1883) p. 64.

Hab. MEXICO: Acapulco; Guadalajara, on rose, Dec. 13, 1897; Guanajuato, on peach (*Jesus Aleman*); Hermosillo, a variety (*Koebele*); Frontera, a variety, on *Opuntia* (Townsend).

2. *Pseudoparlatoria serrulata*.

Pseudoparlatoria serrulata, Twms. & Ckll. Journ. N. Y. Ent. Soc. 1898, p. 180.

Hab. MEXICO: Hermosillo (*Koebele*); Cuautla (*Koebele*).

MYTILASPIS, Sign.

1. *Mytilaspis gloveri*.

Mytilaspis gloverii (Pack.), Ashmead, Orange Insects (1880), p. 1; Comstock, Rep. U. S. Dept. Agric. for 1880, p. 323.

Hab. MEXICO: Tampico, Matamoras, Laguna, Izamal, and Jalapa (Townsend).

In 1898 Townsend found it on orange at Minatitlan, Paraje Nuevo, Tlacotalpam, and Coatzacoalcas.

2. *Mytilaspis becki*.

Coccus beckii, E. Newm. Entom. iv. pp. 217, 218 (1869).

Mytilaspis citricola (Pack.), Comst. Rep. U. S. Dept. Agric. for 1880, p. 321.

Hab. PANAMA, in the city, on orange, in Bolivar Square (Dolby-Tyler).

This species was described and beautifully figured by Richard Beck in Trans. Micr. Soc. ix. (N. S.) pp. 47-49 (1861). This is nine years earlier than Packard's insufficient

account of the insect (Guide to the Study of Ins. 2nd ed. 1870, p. 527), based merely on Glover's unpublished figures.

Newman's *Coccus beckii* is founded on Beck's figures and notes, which are unmistakable. It does not affect the validity of the name that Newman himself, later in the article, confounds the species with *Mytilaspis pomorum* (i. e. *Mytilaspis ulmi* = *Coccus ulmi*, L. Syst. Nat. ed. x. 1758, p. 455).

3. *Mytilaspis carinata*.

Mytilaspis carinata, Ckll. Bull. 4, Techn. Ser., Div. Ent., U. S. Dept. Agric. (1896) p. 45.

Hab. MEXICO: Acapulco.

4. *Mytilaspis mexicana*.

Mytilaspis mexicana, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 438.

Hab. MEXICO: Cuautla (*Koebele*).

5. *Mytilaspis philococcus*.

Mytilaspis philococcus, Ckll. Bull. Soc. Zool. Fr. xviii. p. 252.

Hab. MEXICO (*Koebele*); Guanajuato (*Dugès*); San Cayetano in Guanajuato (*L. M. Cockerell*).

Belongs to the subgen. *Opuntiaspis*, Ckll.

6. *Mytilaspis alba*.

Mytilaspis alba, Ckll. Ent. Monthly Mag. 1893, p. 156.

Hab. MEXICO: Medellin, April 22, 1898, on a common shrubby *Solanum* (*Townsend*).

7. *Mytilaspis nigra*, Ckll., sp. n.

♀. Scale $3\frac{1}{2}$ millim. long (exuviae $1\frac{1}{3}$ millim.), pitch-black, with a narrow dull white margin; very narrow, very convex in a transverse direction, with a dorsal keel; exuviae elongated, half of first skin on second, first skin dull orange, second skin dull dark reddish-brown.

♀. Greatly elongated, yellow, parts turning green in caustic soda; circumgenital glands present, caudolaterals of three, cephalolaterals about four, median doubtful (absent?). Two pairs of well-formed lobes, not particularly large, rounded at ends, with minute lateral lobules; a separate rounded lobule of fair size just laterad of the second lobe. First interlobular interval wide, occupied by an obliquely-placed transversely elongated gland; other such glands are conspicuous along the margin beyond the lobes. Margin beyond the lobes very coarsely and irregularly serrate, with some rather large spines. Cephalic end without spines.

Embryo in female large, with dark blue eyes and 6-segmented antennæ.

Larval antennæ with segments measuring thus in μ :—(1) 11, (2) 7, (3) 11, (4) 7, (5) 9, (6) 26.

Hab. MEXICO: Coatzacoalcos in Vera Cruz, April 24, 1898, on leaf of a large tree called "laurel" (*Townsend*).

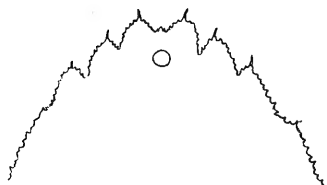
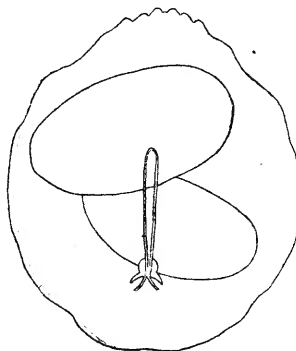
One scale on the edge of the leaf. Very distinct by the narrow black scale.

XANTHOPHTHALMA, Ckll. & Parrott, gen. nov.

Type *X. concinnum*. A genus of Diaspinæ having a peculiar scale, as described below under the species; and the abdominal margin ending in rounded processes, at the ends of which are small bristles. No squames. No circumgenital glands. Allied, apparently, to *Protodiaspis*. The female scales resemble the male scales of other Diaspinæ, at least in general appearance. The first skin retains the larval antennæ as in *Diaspis*.

1. *Xanthophthalma concinnum*, Ckll. & Parrott, sp. n.

- ♀. Scale very minute, hardly half a millim. long, white, with the first skin bright orange and placed longitudinally. The first skin is large for the size of the scale, eye-shaped, with a longitudinal bright orange ridge, and the depressed areas on each side of this blackish, the whole looking like a lizard's eye, closed. The second skin is placed beneath the first and is inconspicuous. The scale is convex and presents a succession of transverse crests or ridges, so that it seems as if made of a number of discs threaded together. The scale has much the general shape of a *Pulvinaria* ovisac, with the first skin taking the place of the female *Pulvinaria*.
- ♀. After boiling in caustic soda, nearly circular, transparent; the end of the abdomen minutely serrulate, and ending in six approximately equal rounded processes, on the end of each of which is a small bristle. Anal orifice circular, near the hinder end. Embryo in female very large.

*Xanthophthalma concinnum*, Ckll. & Parrott.*Xanthophthalma concinnum*, Ckll. & Parrott.

- ♂. On the leaf, usually in little pits, were some small white *Diaspis*-like male scales, with the exuvia at one end, and black. The colour of the exuvia makes us doubt whether they really belonged to *Xanthophthalma*.

Hab. MEXICO: Coatzacoalcos in Vera Cruz, April 24, 1898, on leaves of a large tree called "laurel" (*Townsend*).

Scales on under surface of leaf, scattered all over in numbers, but not massed, being distributed at rather regular intervals, though five or six are often bunched together.

PROTODIASPIS, Ckll.

1. *Protodiaspis parvulus*.

Protodiaspis parvulus, Ckll. Ann. & Mag. Nat. Hist., June 1898, p. 428.

Hab. MEXICO: Amecameca (*Koebele*).

I N D E X.

[Names in small capitals refer to Families, &c.; those in roman type to the chief reference to each species included in the work; those in italics to species incidentally mentioned, synonyms, &c.]

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